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Takahiro Ohkuma

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EXAMINER

CURS, NATHAN M

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/644,914

Applicant(s)

OHKUMA, TAKAHIRO

Examiner

Nathan Curs

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 3, 8, 14, 19, 24 and 25 are objected to because of the following informalities:

Claim 3 in lines 4-5, claim 14 in lines 4-5, and claim 24, lines 3-4 recites, "demultiplexing a multiplexed wavelength... into said correspondent-wavelengths". The phrase "a multiplexed wavelength" should be changed to "a multiplexed signal" or similar, since demultiplexing a single wavelength into multiple wavelengths doesn't make sense.

Claim 8, in line 4 recites, "said each packet"; this should be changed to "said packet". And in line 7 recites "informations"; this should be changed to "information".

Claim 19, in line 6, recites "informations"; this should be changed to "information". And in lines 9-10 recites "said each packet"; this should be changed to "said packet".

Claim 24, line 6 recites, "the output port"; this should be "an output port" to avoid antecedent basis problems.

Claim 25, line 3 recites, "said each packet"; this should be "each packet".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8, 14, 18, 19, 25, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, in lines 3-4, and claim 14, in lines 3-4, recites, "said first service class specifying unit adds said output port information to each packet". However, preceding claim 3, lines 11-12 and preceding claim 14, lines 11-12, respectively recites, "a second service class specifying unit... adding output port information to each packet". Is the applicant trying to claim that the first and second specifying units are adding identical output port information to a packet, or is the applicant trying to claim that a given piece of output port information can be added to a given packet at either the first specifying unit or the second specifying unit?

Claim 8 in lines 5 and 8, claim 19 in lines 5 and 8 and claim 29 in line 5 recites the limitation "second service class-correspondent table". However, there is no corresponding "first" service class-correspondent table, so the scope of the claim is ambiguous.

Claim 18 recites the limitations "said first packet interface unit", "said plurality of ports" and "said first service class specifying unit". There is insufficient antecedent basis for these limitations in the claim.

Claim 25, in line 3 recites, "said output port information is added to said each packet". However, preceding claim 24, line 7 recites, "adding the specified output port information to each packet". Is the applicant trying to claim adding the same output port information to a packet twice, or is the applicant trying to claim adding output port information to a packet in alternative iterations of the method?

Claim 28 in line 4 recites the limitation "said plurality of ports". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-6, 9-17, 20-27 and 30 are rejected under 35 U.S.C. 102(a) as being anticipated by Callegati et al. ("Callegati") (*Exploitation of DWDM for optical packet switching with quality of service guarantees*; Callegati et al.; Selected Areas in Communications, IEEE Journal on; Volume 20, Issue 1, Jan. 2002; Pages: 190-201).

Regarding claims 1, 11, 13, 22 and 23, Callegati discloses a data multiplexing network system, wavelength multiplexer and method including: a wavelength division multiplexing network (page 190, section I); a first wavelength multiplexing function unit for setting a plurality of different wavelengths which correspond to a plurality of different service classes, respectively (fig. 1 and page 195, section V, first three paragraphs), and for mapping each of a plurality of packets into a correspondent-wavelength corresponding to a particular one of the plurality of different service classes to which said packet belongs (page 191, col. 1, third full paragraph and section III, first paragraph, and page 195, section V, first three paragraphs), and for multiplexing said correspondent-wavelengths for said plurality of different service classes for a data transmission through said wavelength division multiplexing network (fig. 1); and a second wavelength multiplexing function unit for receiving each correspondent-wavelength and for fetching a packet therefrom (fig. 1 and page 190, section I and pages 191-193, section III, first paragraph through sub-section A, where a network comprising optical packet switches of fig. 1 will have a first optical switch of the fig. 1 type upstream from a second optical packet switch of the fig. 1 type).

Regarding claims 2 and 12, Callegati the data multiplexing network system and wavelength multiplexer as claimed in claims 1 and 11, wherein said first wavelength multiplexing function unit further includes: a plurality of ports for receiving said plurality of packets and a first

packet interface unit for receiving said plurality of packets from said plurality of ports (fig. 1 and fig. 2, input elements and pages 191-193, section III, first paragraph through sub-section A); a first service class specifying unit for receiving said plurality of packets from said first packet interface unit and for specifying the service class to which each of said plurality of packets belongs and a first wavelength mapping unit for receiving said plurality of packets from said first service class specifying unit and for mapping each of said plurality of packets at a correspondent-wavelength corresponding to the specified service class (fig. 2 and pages 191-193, section III, first paragraph through sub-section A and page 195, section V); and a first wavelength division multiplexing network interface for receiving said correspondent-wavelengths from said first wavelength mapping unit and for multiplexing said correspondent-wavelengths (fig. 1).

Regarding claims 3, 14 and 24, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 2, 13 and 23 wherein said second wavelength multiplexing function unit further includes: a second wavelength division multiplexing network interface for demultiplexing a multiplexed wavelength transmitted through said wavelength division multiplexing network into said correspondent-wavelengths (fig. 1, as applicable to the second optical packet switch); a second wavelength mapping unit for receiving said correspondent-wavelengths from said second wavelength division multiplexing network interface and for fetching said packets from said correspondent-wavelengths (fig. 1 and page 191, col. 1, third full paragraph and section III, first paragraph, and page 195, section V, first three paragraphs); a second service class specifying unit for receiving said packets from said second wavelength mapping unit and for specifying an appropriate output port for each of said packets, and for adding output port information to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, and fig. 2 and

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pages 191-193, section III, first paragraph through sub-section A and page 195, section V); and a second packet interface unit for receiving each packet with said output port information and for sending said packet to the one of said plurality of ports identified by said output port information (fig. 1 and page 191, section III, first paragraph, as applicable to the second optical packet switch).

Regarding claims 4, 15 and 25, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 3, 14 and 24, wherein said first service class specifying unit adds said output port information to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, as applicable to the first optical packet switch), and wherein said second service class specifying unit also specifies said output port based on said output port information of each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, as applicable to the second optical packet switch).

Regarding claim 5, 16 and 26, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 3, 14 and 24, wherein said second service class specifying unit also specifies said output port based on packet specifying information included in each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port assignment, and page 191, col. 1, third full paragraph and pages 193-194, section III.D, where the output port is based on the final destination of the packet, where the destination address is in the header).

Regarding claim 6, 17 and 27, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 5, 16 and 26, wherein said packet specifying information comprises a packet header included in each packet (page 191, col. 1, third full paragraph).

Regarding claim 9, 20 and 30, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 1, 11 and 22 wherein said plurality of different service classes include a best effort class and a perfect band guarantee class (page 195, section V, where the class "high priority in profile traffic" reads on "perfect band guarantee class").

Regarding claim 10 and 21, Callegati discloses the data multiplexing network system and wavelength multiplexer as claimed in claims 1 and 11, wherein at least one of said first and second wavelength multiplexing function units further includes a shaper for controlling packet traffics in a plurality of wavelength bands (page 195, section V).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 18 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callegati (*Exploitation of DWDM for optical packet switching with quality of service guarantees*; Callegati et al.; Selected Areas in Communications, IEEE Journal on; Volume 20, Issue 1, Jan. 2002; Pages: 190-201) in view of Lemieux et al. ("Lemieux") (US Patent Application Publication No. 2004/0006613).

Regarding claims 7, 18 and 28, Callegati discloses the data multiplexing network system, wavelength multiplexer and method as claimed in claims 2, 11 and 22, and discloses that said first service class specifying unit adds said output port information to each packet (page 191, section III, first paragraph, where wavelength assignment corresponds to output port

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assignment, as applicable to the first optical packet switch) and discloses that the routing function is performed on the basis of Internet routing (page 193, section D, first paragraph), but does not disclose that said first service class specifying unit further includes: a first service class-correspondent table for defining correspondences between said service classes and said plurality of ports, and wherein said first service class specifying unit uses said first service class-correspondent table, based on said input port information, so as to specify the service class corresponding to each port. Lemieux discloses Internet routing algorithm for routing packets through nodes using a port table that associates port information with packet service classes (fig. 8 and paragraphs 0083-0085). It would have been obvious to one of ordinary skill in the art at the time of the invention to use an Internet routing algorithm, and corresponding port table associated with service classes, for the routing function in Callegati, to provide the benefit of flexible routing with reduced processing pressure for the nodes, as taught by Lemieux (paragraph 0083).

Response to Arguments

8. Applicant's arguments filed 2 March 2007 have been fully considered but they are not persuasive.

The applicant argues that there is no statute or regulation that prevents reciting a "second" element without reciting a "first" element, and that as long as scope of the claim can be determined, after having read the specification, a claim conforms to 35 USC § 112-2nd paragraph. This argument is not persuasive on both points. 35 USC § 112-2nd paragraph prevents reciting a "second" element with reciting a "first" element because it requires that the claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. Claiming a "second" element with claiming a "first" element raises the

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question of how many elements are distinctly being claimed: only one (referred to as "second" for whatever reason), or two (with the first only implied and not pointed out or distinctly claimed)? The problem with claims 8, 19 and 29 is that the scope of the claim cannot be determined even after reading the specification. It's not clear if 1/2/8 is trying to imply a "first" table, like that recited in claim 7, or if the "second" table is the only table in 1/2/8.

The applicant also argues that Callegati's techniques involve allocating a different number of wavelength converters to each service class, but do not correlate wavelengths to services classes. This argument is not persuasive. On page 195, section V, third paragraph, Callegati states, "in an optical WDM network different classes of service (namely different PHB) will be easily treated different by using the wavelength domain with separate wavelength paths and resources allocated to different PHB". Assigning different wavelengths to different service is self-evident in this passage.

Conclusion


9. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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